RFQ-RT-03-00256

Statement of Work

Denitrification Rates By N_2/Ar Ratio Method

Background

The purpose of this study is to quantify key biogeochemical process rates in estuarine sediments of which denitrification is an integral process. Denitrification measurements shall be taken on 96 intact sediment cores collected during the summer 2003 when denitrification rates are expected to be at their peak. This procurement is for denitrification rate analysis using the N2/Ar ratio method and a membrane inlet mass spectrometer on a minium of 500 samples from 96 intact cores taken at one hour intervals. The Government may exercise its unilateral right to purchase an additional 500 samples for a maximum total of 1000 samples based upon the availability of funds. The performance period for this contract will be from the date of award through December 2003.

Collection

Sediment cores will be collected by EPA from eight stations throughout the Pensacola Bay System, Florida, during the summer 2003 as part of an intensive two week survey. The contractor shall provide all labor, materials and equipment necessary to perform the measurement of actual denitrification rates from the overlying water of 96 sediment cores using the N_2/Ar ratio method and a membrane inlet mass spectrometer. The contractor shall be allowed accompanied access to EPA facilities in order to collect the samples at the appropriate intervals.

Sample cores shall be incubated at in-situ temperatures with water collected from the site. The cores shall be distributed among four light treatments, and samples for denitrification measurements shall be taken at one hour intervals from the overlying water. The sediment samples will be collected intact using 10 cm cores. EPA personnel will transport the cores to EPA facilities where they will be made available to the contractor for denitrification sample collection. The contractor shall be responsible for ensuring proper preservation of samples (e.g. mercuric chloride). The contractor shall also be responsible for ensuring that all analyses are performed within three weeks of collection, as samples have a limited shelf life.

The contractor is required to submit a copy of the Quality Assurance/Quality Control protocols, methods for the analysis and data from a standard reference material demonstrating the criteria can be met to the EPA Project Officer prior to beginning analysis. Results shall be reported in an electronic format no more than ninety days after collection of the samples. A copy of the cover letter which accompanies the results shall be sent to the EPA Project Officer. The contractor shall also provide a hard-copy of output data files (i.e. spreadsheets) for the purpose of quality assurance. A written report detailing the methods used and the results of QC measures

shall be provided by the contractor. Any laboratory notes discussing problems encountered or changes in procedure must be included as an appendix to this report. Original records, such as laboratory notebooks, will be retained for at least two years following final submission, as they will be requested to be sent to the EPA Project Officer at the end of the project period.

The contractor is required to transfer copies of all technical, fiscal, and programmatic files regarding the contract to the EPA Project Officer. These files shall be boxed in accordance with Federal Record Keeping Standards in boxes required by the Records Center and labeled as "**N2/Ar Ratios -Membrane Inlet Mass Spectrometry -** Contractor Name / Contract Number and contain an internal and external packing slip that identifies the specific contents of each box. The external packing slip shall be affixed to the exterior of the box.

The report for each sample shall include sample identification, N2/Ar ratios and calculated denitrification rates for each core.

The contractor shall provide EPA with a price on a per sample basis for the contract line item (CLIN) found below, based on the number of samples projected.

Contract Line Item Number (CLIN) One

The contractor shall perform denitrification measurements using N2/Ar ratio method and a membrane inlet mass spectrometer on a minium of 500 samples up to a maximum of 1000 samples. For the purposes of this contract an analytical batch shall be defined as twenty unknown samples. Standards of air-saturated water maintained at constant temperature should be analyzed with each analytical batch. Contractor shall collect replicate samples at the beginning and end of each time course for each core. A Standard Reference Material (SRM) will be analyzed with each analytical batch as a recovery check standard. Analysis and data reporting shall be as described in the Statement of Work.